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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,585	09/17/2003	Hiroshi Masuya	81751.0066	3682

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EXAMINER

IM, JUNGHWA M

ART UNIT PAPER NUMBER

2811

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/664,585

Applicant(s)

MASUYA, HIROSHI

Examiner

Junghwa M. Im

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-7,9-11 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,9-11 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (US 6818973) in view of Yang (US 6291881).

Regarding claim 1, Fig. 6 of Foster shows a semiconductor device comprising:

a die pad [68];

a semiconductor chip [86] having an electrode [90] and bonded to the die pad;

an inner lead [84] having a sloping section sloping upward and outward from the semiconductor chip when a surface of the die wherein a surface of the die pad which semiconductor chip is bonded faces upward;

a wire [92] electrically connecting the inner lead to semiconductor chip;

a sealing section [94] sealing the inner lead, the semiconductor chip, and the wire;

and

an outer lead [72a] extending outward from the sealing section; and

wherein a portion of the inner lead is higher than the semiconductor chip.

Fig. 6 of Foster shows substantially the entire claimed structure except "the wire is bonded to the sloping section of the inner lead." Fig. 3 of Yang shows a semiconductor package wherein a wire [310] is bonded to the sloping section of the inner lead

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the teachings of Yang into the device of Foster in order to have to the wire bonded to the sloping section of the inner lead for a compact package.

Regarding claim 6, Fig. 6 of Foster shows the inner lead further has a portion extending in a horizontal direction and connected to the outer lead.

Regarding claim 7, Fig. 3 of Yang shows a bonding position between the wire and the inner lead is lower than the position of the electrode [306].

Regarding claim 9, Fig. 6 of Foster shows a surface of the die pad opposite to the semiconductor chip is exposed from the sealing section.

Regarding claim 10, Fig. 6 of Foster shows a circuit board on which the semiconductor device is mounted (col. 13, lines 10-15).

Regarding claim 11, Foster discloses an electronic instrument comprising the semiconductor device (col. 1, lines 43-46).

Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (US 6818973) in view of Mills (US5389739).

Regarding claim 21, Fig. 6 of Foster shows a semiconductor device comprising:
an inner lead [84] having a first sloping section sloping upward and outward from the semiconductor chip, wherein a surface of the die pad which the semiconductor is bonded faces upward;

a die pad [68];

a semiconductor chip [86] having an electrode [90] and bonded to the die pad;

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a wire [92] electrically connecting the inner lead to the electrode;

a sealing section [94] sealing the inner lead, the semiconductor chip, and the wire;

and

an outer lead [72a] extending outward from the sealing section, and

wherein a portion of the inner lead is higher than the semiconductor chip

Fig. 6 of Foster shows substantially the entire claimed structure except “the inner lead further has a second sloping section sloping downward and outward from a higher end of the sloping section.” Fig. 6 of Mills shows a semiconductor package wherein the inner lead further has a second sloping section sloping downward and outward from a higher end of the sloping section.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the teachings of Mills into the device of Foster in order to have the inner lead further having a second sloping section sloping downward and outward from a higher end of the sloping section to add the strength on the leadframe.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster and Yang as applied to claim 1 above, and further in view of Mills.

Regarding claim 5, the combined teachings of Foster and Yang show most aspect of the instant invention except “the inner lead further has a second sloping section sloping downward and outward from a higher end of the sloping section.” Fig. 6 of Mills shows a semiconductor package wherein the inner lead further has a second sloping section sloping downward and outward from a higher end of the sloping section.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the teachings of Mills into the device of Foster and Yang in order to have the inner lead further having a second sloping section sloping downward and outward from a higher end of the sloping section to add the strength on the leadframe.

Response to Arguments

Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jmi



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